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Dr. James Watson
Biology Department
Harvard University
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JAMES WATSON

Dear Jim:

I wonder if you would think enough of this to warrant its dissemination through I.E.G. As something of an experiment I propose to leave it anonymous. In any case I would be rather surprised if this thought is not already documented somewhere else, and I have no particular interest in the attribution. If you believe that there is already conclusive evidence against it on the one hand, or that the proposal is very widely understood on the other, we could just as well drop it. Some conversations I have had with Paul Berg suggest that it may not quite fall into either category.

Sincerely yours,

Joshua Lederberg
Professor of Genetics

allosteric
tRNA

A SUGGESTION ON THE M-RNA, T-RNA, RIBOSOME COMPLEX

This notion is almost certainly not original, but I have seen no explicit discussion of it over a period of time, and it does suggest certain experiments.

The problem is to account for the binding of two large structures, t-RNA to the ribosome, through a codon/anticodon pair which is sensitive to the alteration of a single nucleotide.

The proposed answer is that the t-RNA is triggered (when loaded with amino acid?) in a sensitive conformation that needs only the competitive binding of the anticodon to switch it to an "antiribosomal" state. This state is one shared by many t-RNA's, commonly complementary to the ribosomal binding site.

Suggested inquiries:

1. Physical changes in loaded t-RNA's induced by messages in the absence of ribosomes. This will not necessarily work, since the ribosome may also play a more dynamic role in the conformational switch.

2. Sequence information on the co-occurrence of codons and anticodons in the s-RNA. The switch would then be a transition from intra- to intermolecular pairing of the anticodon.